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A New Species of *Barbus*
(Pisces, Cyprinidae) from the
Sabie River, North-Eastern
Transvaal

By courtesy of the Director, Department of Nature Conservation, Pretoria, and in collaboration with Mr. P. J. le Roux, Senior Fisheries Officer of the Lydenburg Provincial Fisheries Institute, a survey has been completed of the fishes collected by the Institute. Material collected by Dr. U. de V. Pienaar, Biologist, Kruger National Park, was also placed at my disposal. The results of this investigation, which is part of a research programme sponsored by the Council for Scientific and Industrial Research, Pretoria, will be published in more detail. This preliminary note, which includes the description of a new species of *Barbus*, draws attention to some new distribution records.

Lydenburg is ideally situated on the north-eastern Transvaal highveld for easy access to tributaries of four large drainage systems, the Vaal-Orange, Limpopo, Incomati and Pongolo Rivers. In the Lake Chrissie area, for example, a circle with a radius of twenty miles would embrace the headwaters of tributaries of all four of these drainage basins. Exploration of these highveld streams has produced some interesting results, one of the first being the discovery of a population of *Kneria auriculata* (Pellegrin) in a small tributary of the Crocodile River, Incomati system. Previous to this the most southerly record of *Kneria auriculata*, which is widely distributed in the Zambezi River system, was from numerous tributaries of the Sabi-Lundi system of Rhodesia. This species has not, as yet, been recorded from any part of the Limpopo River system.

Another interesting discovery was a population of *Barbus neefi* Greenwood in a dam on a tributary of the Ohrigstad River, Limpopo system. This species, described from the headwaters of the Upper Zambezi River (Greenwood 1962), has not been recognised in any collections made from intervening river systems. In view of the great distance between the type locality and the Ohrigstad River specimens were sent to Dr. P. H. Greenwood of the British Museum (Natural History) who kindly confirmed the diagnosis (Greenwood in litt., 1965).

Greenwald (1958), his material covering both the Incomati and Pongolo River systems, confirmed the record by Gilchrist & Thompson (1913) of *Barbus*

unitaeniatus Günther from the Incomati River. A recent and very extensive collection of small *Barbus* submitted by le Roux showed that it was difficult to separate *B. labialis* G. & T. (= *B. macrurus* G. & T.) taken from the Limpopo system and having 14 scales around the caudal peduncle, from *B. unitaeniatus* of the Incomati system with the same squamation characteristics. Furthermore it was not possible to separate *B. labialis* with 16 scales around the caudal peduncle from material collected by Bell-Cross in the Mwekera River of the Kafue system, Zambia. Material from the Okavango River and the Middle Zambezi system proved equally as difficult to separate from Transvaal specimens. A large collection representing the *labialis/unitaeniatus* complex from widely distributed points was therefore sent to Greenwood for detailed examination and comparison with type and topotype material in the British Museum (Natural History). As a result of this investigation Greenwood (in litt. 1965) came to the conclusion that *B. unitaeniatus* Günther, like many other species of African *Barbus*, was a polytypic species with a wide distribution from the Pongolo River in the south to the Zambezi and Angolan rivers in the north. *Barbus labialis* G. & T. should therefore be regarded as a synonym of *Barbus unitaeniatus* Günther.

The identification of the Angolan species *Barbus argenteus* Günther, taken from highveld tributaries of the Incomati and Pongolo River systems, was confirmed by Greenwood (in litt. 1962). Like *B. neefi*, *B. argenteus* has not been recognised in collections made from intervening drainage basins. If we include *B. mattozi* (= *B. rapax*), *B. marequensis* (= *B. codringtoni*), *B. paludinosus*, *B. eutaenia*, *B. lineomaculatus*, *B. viviparus* and *B. barotseensis* with *B. unitaeniatus*, *B. neefi* and *B. argenteus* it is interesting to note how many of the *Barbus* of the Transvaal occur in the region embracing the Cunene, Okavango, Mashi and Upper Zambezi Rivers. For zoogeographical purposes it is of importance to note that Bond (1964, p. 49), in his discussion on the origin of the Victoria Falls, states: "It seems possible that in the geological past the Mashi and Upper Zambezi flowed south through the present Makarikari Lake and joined the Limpopo Valley, and that the Middle Zambezi was quite a separate river system."

The few species of *Barbus* endemic to the Transvaal region are remarkably restricted in distribution. *Barbus motebensis* Steindachner, a species resembling *B. anoplus* but differing in that there are always two pairs of barbels and males develop conical tubercles on the snout, is restricted to the southern highveld tributaries of the Limpopo where it is fairly common, but is absent from those tributaries rising in Rhodesia. *Barbus treurensis* Groenewald, quite distinct from other Transvaal *Barbus*, is, from recent collecting, restricted to its type locality, the Treur River, a highveld tributary of the Blyde River which flows into the Limpopo. A thorough search by Le Roux and his colleagues in the Sabie River failed to produce any specimens of *B. treurensis* but it did lead to the discovery of an undescribed species, apparently endemic to the Sabie and which

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is described below. Another species endemic to the Incomati River system is, of course, *Barbus annectens* Gilchrist and Thompson which was described originally from the Sabie River from material collected in the Kruger National Park. This species is well represented in material submitted by Pienaar.

Barbus brevipinnis sp.n. Text-fig. 1.

HOLOTYPE

An adult female 46 mm. standard length collected by the Provincial Fisheries Institute, Lydenburg, in the Sabie River, Incomati River system, Pilgrim's Rest District. Albany Museum Registered No. P. F. 1072, with 20 paratypes, P. F. Nos. 1073-1092, collected at the same locality.



Figure 1

Barbus brevipinnis sp. nov. Type specimen.

DESCRIPTION

In percentage of standard length: fork length 112.0-116.0, depth 26.0-28.7, length of head 23.4-26.1, lateral eye diameter 6.0 (adult) - 8.1 (young), snout length 4.3-4.8, interorbital width 10.9-12.9, caudal peduncle length 22.8-26.0, peduncle depth 11.7-13.7, longest dorsal ray 16.3-21.2, longest pectoral ray 12.9-15.8, longest ventral ray 12.2-15.8, longest anal ray 10.4-15.3, length of anterior barbel 0 (2 specimens) - 3.3, length of posterior barbel 0.1 (young) - 4.7 (adult). Snout tip to origin of pectoral 23.4-27.4, origin of ventral 48.4-51.6, origin of dorsal 50.6-54.5, origin of anal 66.7-70.7.

Gill rakers short and thick, 10-12 on the whole anterior arch. Pharyngeal teeth in three series 1:3:4 - 4:3:1, all being stout and hooked.

Scales radiately striated with 5-11 striae. Lateral line 27-30, dorsal to lateral line 4, lateral line to origin of ventral 2, predorsal scales 10-11, caudal peduncle scales 12 (range 10-12). Dorsal fin III 7-8, the last branched ray double, anal III 5. The type specimen has 7 branched rays in the dorsal fin.

Specimens preserved in formalin have a dark lateral stripe which starts at the tip of the snout and follows the dorsal contour joining the lateral line posterior to the anal fin. This lateral stripe may be broken into a series of dots and dashes. In some specimens there is a series of small dots along the dorsal surface, near

its apex, between the dorsal fin and the caudal peduncle. There is a faint spot at the base of the anal fin and another at the base of each pectoral fin. In live fishes the dark body markings are fainter, the dorsal surface a dark olive with golden glints to the scales on the sides and belly. The operculum is very golden and also the iris of the eye. The lateral line tubules are edged with dark pigment which becomes prominent in preserved specimens.

B. brevipinnis is a small species which does not attain a fork length of much over 50 mm. Superficially it resembles *B. viviparus* M. Weber but the small protractile mouth with its very short barbels, the lower dorsal and anal fin, as well as the shorter pectoral and ventral fins help to distinguish it from that species. Through the courtesy of the Director of the South African Museum, Mr. R.S. Crass, Fisheries Research Officer, Pietermaritzburg, and Dr. Pienaar of the Kruger National Park it has been possible to compare *B. brevipinnis* directly with paratypes of *B. viviparus* (S.A.M. 22083), housed in the South African Museum, and a number of specimens of *B. viviparus* from widely distributed points in Natal and the Kruger National Park. The following significant differences in percentage of standard length were obtained:

	<i>B. brevipinnis</i> sp.n.	<i>B. viviparus</i>
Dorsal height	16.3 - 21.2	21.6 - 24.4
Length of pectoral	12.9 - 15.8	16.2 - 18.4
Length of ventral	12.2 - 15.8	16.6 - 18.4
Length of head	23.4 - 26.1	24.4 - 25.6
Depth	26.0 - 28.7	25.6 - 29.6
Anterior barbel	0.0 - 3.3	5.1 - 6.1
Posterior barbel	0.1 - 4.7	7.7 - 9.0

I wish to thank Mr. P.J. le Roux for supplying both living and preserved material of this species, and Mr. R.S. Crass and Dr. P.H. Greenwood for examining and commenting on preserved material. Mrs. H.M. Jubb very kindly prepared the illustration of *Barbus brevipinnis*.

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